



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,422	03/12/2004	Seiji Horino	Q79112	6553

23373 7590 08/22/2006

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

ROJAS, OMAR R

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/798,422		HORINO ET AL.	
	Examiner		Art Unit	
	Omar Rojas		2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27, 29-46 and 49 is/are rejected.
- 7) ☒ Claim(s) 28, 47, and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Response to Amendment

1. With regards to the amendment filed on April 24, 2006, all the requested changes to the claims have been entered. Claims 1 to 49 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-27, 29-46, and 49 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 29 is objected to because of the following informalities: Claim 29 recites that the optical fiber "may be fixed". This user of the term "may be" is considered ambiguous and imprecise. Appropriate correction is required.
4. Claim 35 is objected to because of the following informalities: In claim 35, the limitation "the ridgeline" lacks a clear antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1, 2, 4, and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by US 6,435,733 B1 to Parat et al. ("Parat").**

Art Unit: 2874

In re claim 1, Parat discloses in Figure 14, an optical fiber fixing system for fixing an optical fiber comprising:

a fixing body 66 comprising a first groove, formed in a top surface thereof, extending in a first direction to support the optical fiber 2 along its axial direction; and

a pressing body 8 comprising a protrusion 10, formed on a bottom surface thereof, and extending substantially perpendicularly to the first groove, wherein the bottom surface of the pressing body 8 faces the top surface of the fixing body 66. Figure 14 of Parat is reproduced below.

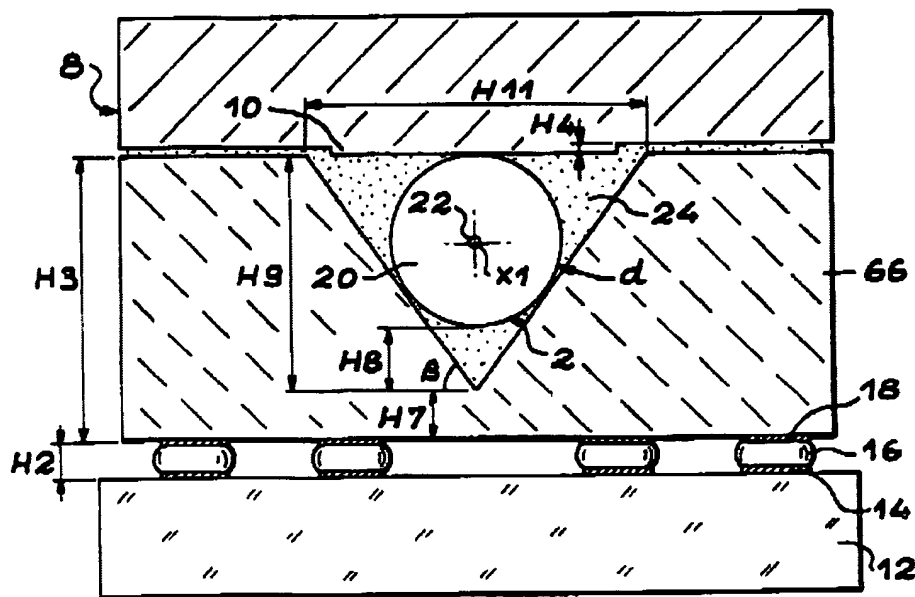


FIG. 14

In re claim 2, the bottom surface of the pressing body 8 and the top surface of the fixing body 66 are substantially planar.

In re claim 4, the cross section of the first groove is V-shaped as seen in Figure 14.

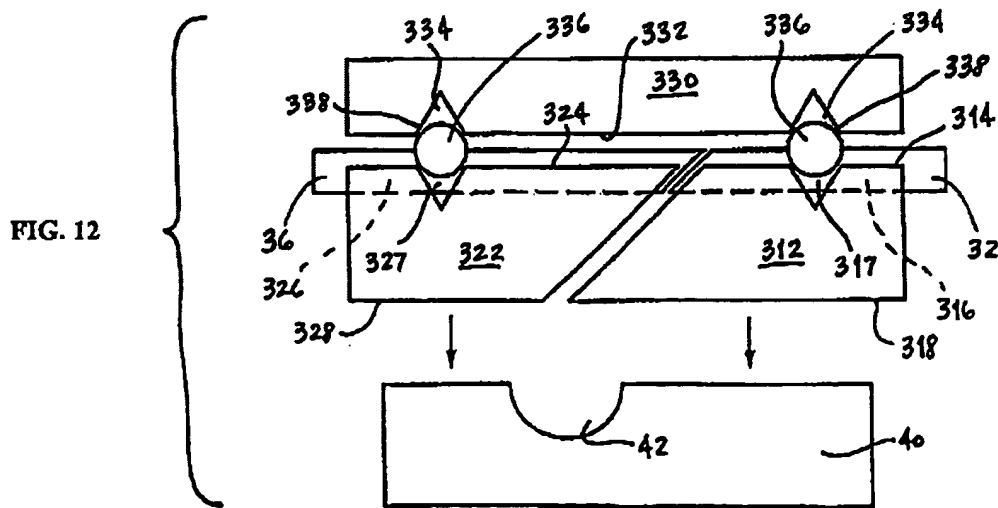
In re claim 29, the pressing body 8 is movable towards the fixing body 66 so that the optical fiber 2 is fixed therebetween by the protrusion 10 pressing the optical fiber 2 against the first groove (col. 11, lines 53-55).

7. **Claims 1-4 and 18 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US 7,079,725 B2 to Sherrer et al. ("Sherrer").**

In re claim 1, Sherrer discloses in Figures 12-13, an optical fiber fixing system for fixing an optical fiber comprising:

a fixing body 322 comprising a first groove 326, formed in a top surface 324 thereof, extending in a first direction to support the optical fiber 36 along its axial direction; and

a pressing body 330 comprising a protrusion 336, formed on a bottom surface 332 thereof, and extending substantially perpendicularly to the first groove 326, wherein the bottom surface 332 of the pressing body faces the top surface 324 of the fixing body. Figure 13 of Sherrer is reproduced below.



In re claim 2, the bottom surface 332 of the pressing body 330 and the top surface 324 of the

Art Unit: 2874

fixing body 322 are substantially planar.

In re claim 3, when the optical fiber 36 is supported in the first groove 326, a ridgeline of the optical fiber 36 protrudes out of the first groove above the top surface 324 of the fixing body 322.

In re claim 4, the cross section of the first groove 326 is inherently V-shaped because a V-shape is considered a well-known conventional shape to use in order to hold optical fibers.

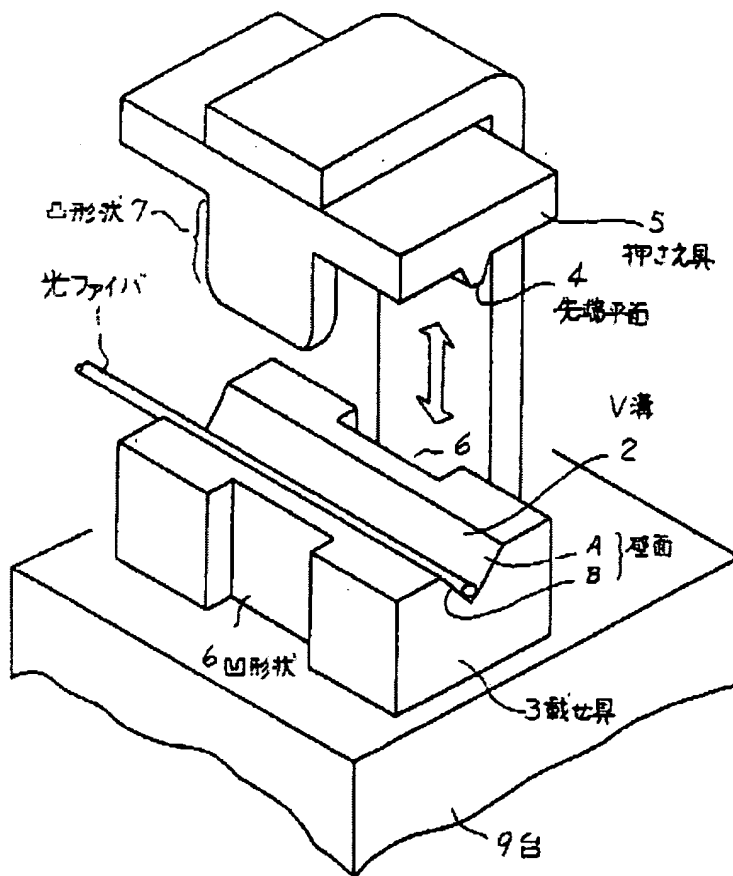
In re claim 18, the protrusion 336 is arranged in a precision mounting groove 334 formed in the bottom surface 332 of the pressing body 330. The protrusion 336 is inherently formed of a material different from that of the pressing body 330 because there are only two possible alternatives (i.e., they are either formed of the same material or a different material).

8. Claims 32, 34, 35, 37, 40, 43, and 49 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by JP 01013505 to Igarashi et al. ("Igarashi").

In re claim 32, Igarashi discloses an optical fiber fixing system (Figures 1 and 2) for fixing an optical fiber comprising:

a fixing body 3 comprising a first groove 6 formed in a first surface thereof, and a second groove 2 formed in a second surface thereof, both extending in a first direction to support the optical fiber 1 along its axial direction; and

a pressing body 5 comprising a planar clamp portion 7 facing the first surface of the fixing body 3, and a guide portion 4 facing the second surface of the fixing body 3 and comprising two sloped portions configured to interface with the second groove 2 to align the optical fiber therein. Figure 1 of Igarashi is reproduced below.



本発明の一実施例の斜視図
第 1 図

In re claim 34, the guide portion 4 further comprises a bottom surface arranged between the two sloped portions as seen in Figure 1.

In re claim 35, the fixing body 3 and pressing body 5 are arranged adjacently to fix the optical

Art Unit: 2874

fiber 1 therebetween, the bottom surface of the guide portion 4 is located above the ridgeline of the optical fiber 1 supported in the second groove 2.

In re claim 37, the first surface of the pressing body 5 and the first surface of the fixing body 3 are substantially planar.

In re claim 40, the first groove 6 is shorter than the second groove 2 when measured in the first direction.

In re claim 43, at least one of the fixing body 3 and pressing body 5 is movable towards the other so that the optical fiber may be fixed therebetween as disclosed in the English Abstract of Igarashi.

In re claim 49, the sloped portions of the guide portion 4 protrude into the second groove 4 to align the optical fiber 1 therein as disclosed in the English Abstract of Igarashi.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. **Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parat as applied to claim 1 above, and further in view of Patent No. 5,993,070 to Tamekuni et al. ("Tamekuni").**

In re claim 1, Parat only differs from the claim in that a trapezoid-shape is not explicitly disclosed. Tamekuni, on the other hand, discloses that V-shaped and trapezoidal-shaped grooves are equivalent structures for holding optical fibers (Tamekuni, column 7, lines 50-62).

Interchanging equivalent structures is generally a matter of obvious design choice. Therefore, it would have been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claim 5 in view of Parat combined with Tamekuni.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sherrer as applied to claim 1 above, and further in view of Tamekuni.

In re claim 1, Sherrer only differs from the claim in that a trapezoid-shape is not explicitly disclosed. Tamekuni, on the other hand, discloses that V-shaped and trapezoidal-shaped grooves are equivalent for holding optical fibers (Tamekuni, column 7, lines 50-62). Interchanging equivalent structures is generally a matter of obvious design choice. Therefore, it would have been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claim 5 in view of Sherrer combined with Tamekuni.

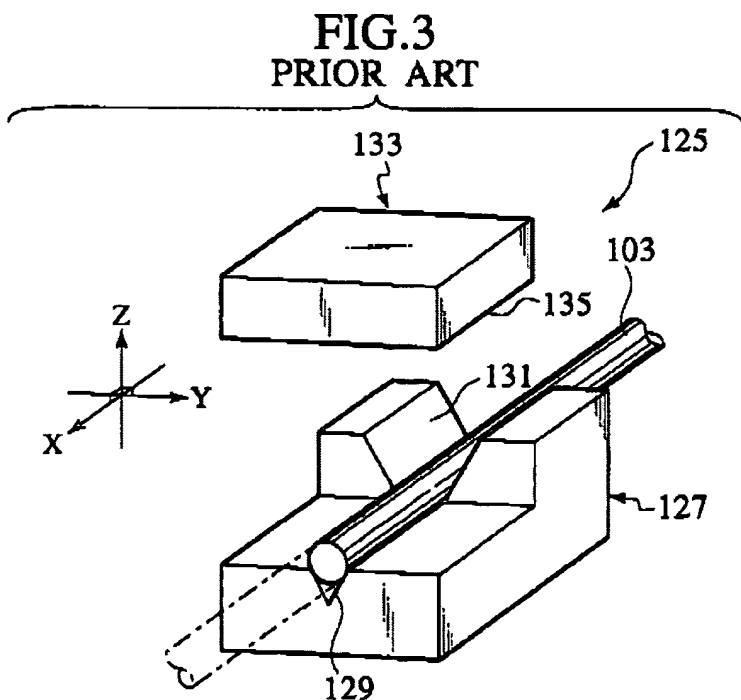
12. Claims 3, 6-11, 30-31, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parat as applied to claims 1, 2, and 4 above, and Parat in view of Tamekuni as applied to claim 5 above, and further in view of Applicant's admitted prior art ("APA").

In re claims 6-11, the previous remarks concerning claims 1, 2, 4, and 5 are incorporated herein.

In re claim 46, the protrusion 10 of Parat is arranged to press against the optical 2 supported in the groove.

Thus, Parat and Parat in view of Tamekuni only differ from claims 3, 6-8, 10-11, and 46 in that neither reference teaches a fixing body having a stepped structure with a second groove formed in a second surface of the fixing body so that when the optical fiber is supported in the second groove the ridgeline of the fiber is above the first surface and below the second surface as recited by claims 3, 6, and 8. APA, as seen in Figure 3 of the application drawings, discloses a fixing body 127 having a stepped structure with a second groove 131 formed in a second surface of the fixing body so that when the optical fiber 103 is supported in the second groove the ridgeline of the fiber is above a first surface and below a second surface as recited by claims 3, 6, and 8.

Figure 3 of the application is reproduced below.



The motivation for combining APA with Parat and Parat in view of Tamekuni is to restrict movement of the optical fiber in a Y-axis direction. Therefore, it would have been obvious to one of ordinary skill in the art at time of the claimed invention to obtain the invention specified

by claims 3, 6-8, 10-11, and 46 in view of APA combined with Parat and Parat in view of Tamekuni.

In re claim 9, Parat in view of APA further differ from the claim in that APA does not show that the first groove has a length shorter than that of the second groove. A change in size or length is generally considered a matter of obvious design choice. In the case at hand, common sense says there are only three design alternatives to choose from in APA: 1) the first groove is shorter than the second groove; 2) the first groove is longer than the second groove; or 3) the first groove is the same length as the second groove. Choosing one of only three possible alternatives requires no special skill and would be considered a matter of routine experimentation in order to optimize the lengths of the grooves. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claim 9 in view of Parat combined with APA.

In re claims 30 and 31, Parat only differs from these claims in that Parat does not disclose a pair of optical fiber fixing systems as recited in claim 1 for respectively fixing a pair of optical fibers set up at an equal distance from a butting section and fusion-splicing the optical fibers. APA, as seen in Figure 1 of the application drawings, discloses a pair of optical fiber fixing systems 105 for respectively fixing a pair of optical fibers 103 set up at an equal distance from a butting section 107 and fusion-splicing the optical fibers (see paragraph [06] of the specification). The motivation for combining APA with Parat is to increase the transmission distance by adding additional optical fiber to Parat using a known optical fiber fusion-splicing system from the prior

art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 30 and 31 in view of Parat combined with APA.

13. Claim 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parat as applied to claim 1 above.

In re claim 12, Parat only differs from the claim in that the protrusion 10 of Parat appears to have a semi-rectangular cross-section rather than a semi-cylindrical cross-section as recited by claim 12. It would have been simple to obtain a semi-cylindrical cross-section in Parat by merely rounding off the edges of the protrusion 10. The motivation for doing this would be to avoid sharp edges that could damage the optical fiber when pressing against it. Therefore, it would have been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claim 12 in view of Parat.

In re claims 13 and 14, the invention of claim 12 has been shown to be obvious in view of Parat. Thus, Parat further differs from claims 13 and 14 in that neither ceramic nor metal is disclosed. However, ceramic and metal are well-known materials used in optical fiber fixing systems. It would have been desirable to choose ceramic or metal to form the pressing body 8 of Parat in order to obtain added strength, durability, and/or ease of manufacturing. Therefore, it would have also been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 13 and 14 in view of Parat.

In re claim 15, Parat only differs from the claim in that a prismatic shape is not disclosed. A change in shape without a perceived criticality has been held as a matter of obvious design choice. See MPEP § 2144.04. Therefore, because no perceived criticality is disclosed by Applicant(s) for the use of a prismatic shape, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claim 15 in view of Parat.

In re claims 16 and 17, the invention of claim 15 has been shown to be obvious in view of Parat. Thus, Parat further differs from claims 16 and 17 in that neither ceramic nor metal is disclosed. However, ceramic and metal are well-known materials used in optical fiber fixing systems. It would have been desirable to choose ceramic or metal to form the pressing body 8 of Parat in order to obtain added strength, durability, and/or ease of manufacturing. Therefore, it would have also been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 16 and 17 in view of Parat.

14. Claim 19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherrer as applied to claims 1 and 18 above.

In re claims 19-21, Sherrer only differs from these claims in that Sherrer is silent as to the material(s) used for the pressing body 330 and the protrusion 336. However, resin, ceramic, and metal are well-known materials used in optical fiber fixing systems. It would have been desirable to choose resin to form the pressing body 330 of Sherrer and ceramic or metal to form the protrusion 336 in order to obtain added strength, durability, and/or ease of manufacturing.

Therefore, it would have also been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 19-21 in view of Sherrer.

In re claims 22-24, the use of ceramic or metal has been shown to be an obvious design choice in Sherrer. Thus, Sherrer further differs from claims 22-24 in that the protrusion 336 of Sherrer appears to have a circular cross-section rather than a cylindrical cross-section as recited by claim 22. A change in shape without a perceived criticality has been held as a matter of obvious design choice. See MPEP § 2144.04. Therefore, because no perceived criticality is disclosed by Applicant(s) for the use of a cylindrical shape, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 22-24 in view of Sherrer.

In re claims 25-27, the use of ceramic or metal has been shown to be an obvious design choice in Sherrer. Furthermore, the protrusion 336 may be considered integral with the pressing body 330 because it is adhered to the pressing body by adhesive. Thus, Sherrer further differs from claims 25-27 in that the protrusion 336 of Sherrer appears to have a circular cross-section rather than a prismatic cross-section as recited by claim 25. A change in shape without a perceived criticality has been held as a matter of obvious design choice. See MPEP § 2144.04. Therefore, because no perceived criticality is disclosed by Applicant(s) for the use of a prismatic shape, it would have also been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 25-27 in view of Sherrer.

15. Claims 33, 36, 44, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi as applied to claim 32 above, and further in view of APA.

In re claims 33 and 36, Igarashi only differ from the claims in that Igarashi does not teach a fixing body having a stepped structure with a second groove formed in a second surface of the fixing body arranged above the first surface so that when the optical fiber is supported in the second groove the ridgeline of the fiber is above the first surface and below the second surface as recited by claims 33 and 36. APA, as seen in Figure 3 of the application drawings, discloses a fixing body 127 having a stepped structure with a second groove 131 formed in a second surface of the fixing body arranged above the first surface so that when an optical fiber 103 is supported in the second groove the ridgeline of the fiber is above the first surface and below the second surface as recited by claims 33 and 36. Figure 3 of the application is shown above. The motivation for combining APA with Igarashi is to restrict movement of the optical fiber in a Y-axis direction. Therefore, it would have been obvious to one of ordinary skill in the art at time of the claimed invention to obtain the invention specified by claims 33 and 36 in view of APA combined with Igarashi.

In re claims 44 and 45, Igarashi only differs from these claims in that Igarashi does not disclose a pair of optical fiber fixing systems as recited in claim 32 for respectively fixing a pair of optical fibers set up at an equal distance from a butting section and fusion-splicing the optical fibers. APA, as seen in Figure 1 of the application drawings, discloses a pair of optical fiber fixing systems 105 for respectively fixing a pair of optical fibers 103 set up at an equal distance from a butting section 107 and fusion-splicing the optical fibers (see paragraph [06] of the

specification). The motivation for combining APA with Igarashi is to increase the transmission distance by adding additional optical fiber to Igarashi using a known optical fiber fusion-splicing system from the prior art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 44 and 45 in view of Igarashi combined with APA.

16. Claims 38, 39, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi as applied to claim 32 above.

In re claims 38 and 39, the second groove 2 of Igarashi has a V-shaped cross-section as seen in Figure 1. Thus, Igarashi only differs from claims 38 and 39 in that Igarashi does not suggest using a V-shaped or trapezoidal-shaped cross-section for the first groove 6. Instead, the first groove 6 of Igarashi has a simple rectangular-shaped cross-section as seen in Figure 1. The motivation for using a V-shaped or trapezoidal-shaped cross-section in Igarashi would be provide a more aesthetic look by changing the shape of the first groove 6 to comprise a more visually pleasing cross-section. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 38 and 39 in view of Igarashi.

In re claims 41 and 42, Igarashi only differs from these claims in that Igarashi is silent as to the material(s) used for the pressing body 5. Ceramic and metal are well-known materials used in optical fiber fixing systems. It would have been desirable to choose ceramic or metal to form the pressing body 5 of Igarashi in order to obtain added strength, durability, and/or ease of manufacturing. Therefore, it would have also been obvious to one of ordinary skill in the art at

the time of the claimed invention to obtain the invention specified by claims 41 and 42 in view of Igarashi.

Allowable Subject Matter

17. Claims 28, 47, and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 28 and 48, the primary reason for allowance of the claim is the inclusion of the pressing body comprising both a protrusion and a guide portion formed in the same surface, wherein the guide portion further comprises two sloped portions and is configured to interface with the second groove to align the optical fiber therein. The aforementioned feature(s) in combination with the other recited elements of the claim(s) is considered patentable over the prior art of record.

Regarding claim 47, the primary reason for allowance of the claim is the inclusion of the planar clamp portion comprising both a protrusion and a guide portion, wherein the guide portion further comprises two sloped portions and is configured to interface with the second groove to align the optical fiber therein. The aforementioned feature(s) in combination with the other recited elements of the claim is considered patentable over the prior art of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (571) 272-2357. The examiner can normally be reached on Monday-Friday (12:00PM-8:00PM).

Art Unit: 2874

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick, can be reached on (571) 272-2344. The official facsimile number for regular and After Final communications is (571) 273-8300. The examiner's RightFAX number is (571) 273-2357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Omar Rojas
Patent Examiner
Art Unit 2874

or
August 21, 2006



Rodney Bovernick
Supervisory Patent Examiner
Technology Center 2800